Cal. 6M23

You are now the proud owner of a SEIKO Analogue Quartz Watch Cal. 6M23. For best results, please read the instructions in this booklet carefully before using your SEIKO Analogue Quartz Watch. Please keep this manual handy for ready reference.

Vous voici l'heureux propriétaire d'une montre quartz analogique SEIKO Cal. 6M23. Pour obtenir d'excellentes performances de cette article SEIKO, veuillez lire attentivement cette brochure que vous conserverez pour toute référence ultérieure.

Enhorabuena por su adquisición de un reloj SEIKO analógico de cuarzo Cal. 6M23. Para óptimo resultado, lea detenidamente las instrucciones de este folleto antes de usar el reloj. Guarde este manual para consulta posterior.

Sie sind jetzt Besitzer einer SEIKO Analog-Quarzuhr Kal. 6M23. Bitte lesen Sie diese Bedienungsanleitung vor Verwendung der Uhr sorgfältig durch und heben Sie sie gut auf.

Siete ora in possesso di un orologio SEIKO Analogico al Quarzo Cal. 6M23. Per ottenere i migliori possibili risultati dal Vostro orologio, leggere attentamente le istruzioni di questo manuale prima di utilizzare il Vostro orologio SEIKO analogico al quarzo. Conservare poi il manuale stesso per ogni qualsiasi eventuale futuro riferimento.

Você pode sentir-se orgulhoso de possuir um Relógio SEIKO Quartz Análogo Cal. 6M23. Para obter os melhores resultados, leia atentamente as instruções contidas neste opúsculo antes de usar o seu Relógio SEIKO Quartz Análogo. Queira conservar este manual para referências futuras.

閣下現在已經有一隻，機件編號爲6M23的精工牌指針式石英錶。在使用您的精工牌指針式石英錶以前，務請注意閱讀這本小册子中的各項說明，並請將手册妥加保管，以便隨時參考。

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ENGLISH

English

SEIKO ANALOGUE QUARTZ ALARM CHRONOGRAPH

Cal. 6M23

FEATURES

SEIKO Quartz Watch Cal. 6M23 is an analogue watch featuring calendar, alarm, dual time and stopwatch functions.

■ TIME
Hour, minute and second hands and a small 24-hour hand.

■ CALENDAR
Date is displayed in numerals and month is indicated by the hour and minute hands. The second hand indicates the number of years that have passed since the last leap year. The calendar automatically adjusts for odd and even months including February of leap years to 2099.

■ ALARM
The alarm can be set on a 24-hour basis in minutes and rings once a day.

■ DUAL TIME
Time of an area in a different time zone can be set in the 24-hour indication.

■ STOPWATCH
It can measure up to 31 days, 23 hours, 59 minutes and 59 seconds. It measures in 1/10 second increments for the first hour, and in second increments thereafter. Split time measurement is possible.

■ ORBITAL RULE
Some models are provided with an orbital rule on the dial that indicates the velocity, altitude and the number of revolutions per day of a satellite.

■ TELEMETER
Some models are provided with a telemeter with a graduated dial.

■ DIRECTION INDICATOR
Some models are provided with a direction indicator on the rotating bezel.

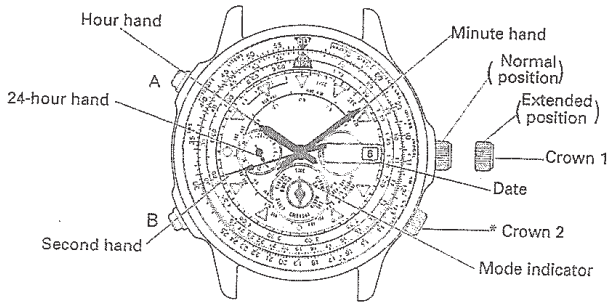
■ BATTERY LIFE INDICATOR
The second hand moves at two-second intervals when the battery needs to be replaced.

English

MODES AND DISPLAYS

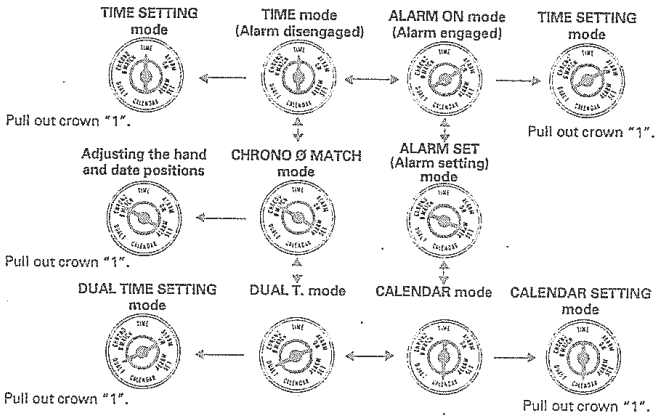
There are two buttons and crowns as indicated in the illustration below.

["TIME" mode]



*Crown "2" is provided only on models that include rotary slide rule.

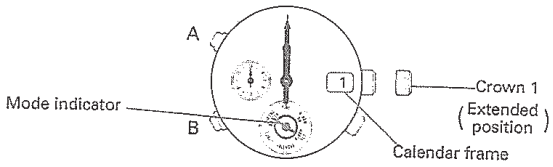
The mode changes by turning crown "1" at normal position clockwise or counterclockwise.



ADJUSTING THE HAND AND DATE POSITIONS

Before setting the time and calendar, be sure to use the "CHRONO Ø MATCH" mode to check that the hour, minute and second hands are in the 12 o'clock position and that the date numeral appears at the center of the calendar frame.

- Turn crown "1" to set the mode indicator to "CHRONO Ø MATCH".
  If the hands do not return to the 12 o'clock position or the date numeral does not appear at the center of the calendar frame, reset them following the procedure below.
  * When the stopwatch is counting, press "A" to stop measurement and then press "B" to reset the hands.



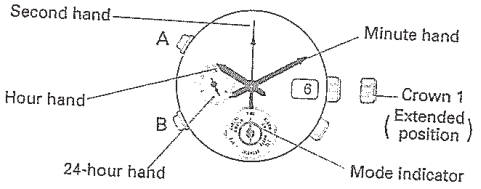
1. Pull out crown "1". The date returns to "1", and then the second hand advances 10 seconds and returns to where it was.
   * Selection of the hand or date to be adjusted can be made only after the date returns to "1".
2. Press "A" to select the hand or date to be adjusted in the following order.

   Second hand → Minute hand → Hour hand → Date

   * The hands selected to be adjusted will turn 60° clockwise and return to where they were. The date will advance one day and return to "1" if selected.
3. Press "B" to reset the selected hand to the 12 o'clock position or put the date numeral "1" to the center of the calendar frame.
   * With each press of "B", the second hand advances one second while the other hands and date move slightly.
   * The hands and date move quickly if the button is kept pressed for 2 seconds.
4. Push crown "1" back in to the normal position.

TIME SETTING

- Turn crown "1" to set the mode indicator to "TIME" or "ALARM ON".



1. Pull out crown "1". The second hand automatically advances to the 12 o'clock position.
2. Press "A" repeatedly to set the minute hand. It advances one minute with each press of the button.
   * The hand moves quickly if the button is kept pressed for 2 seconds.
   * As the minute hand moves, the hour hand also moves correspondingly.

3. Press "B" repeatedly to set the hour hand. It advances one hour with each press of the button.
   * The hand moves quickly if the button is kept pressed for 2 seconds.
   * The minute hand will not move if "B" is pressed.
   * The 24-hour hand turns a full circle in 24 hours and moves correspondingly with the hour hand. When setting the hour hand, check that the 24-hour hand is correctly set.
4. Push crown "1" back in to the normal position in accordance with a time signal.

CALENDAR

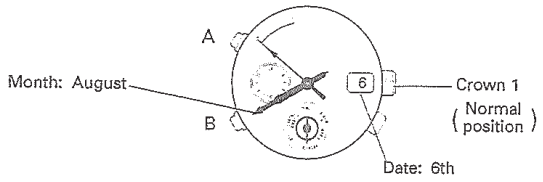
- Turn crown "1" to set the mode indicator to "CALENDAR".
  The hour and minute hands move to indicate the month you set previously.

How to read the calendar

The date is indicated by the numeral shown in the calendar frame, and the month is indicated by the hour marker that the hour and minute hands point to. The second hand indicates the number of years that have passed since the last leap year.

Ex.) August 6th, 1992 (leap year)

Leap year indication: L.Y. (leap year)

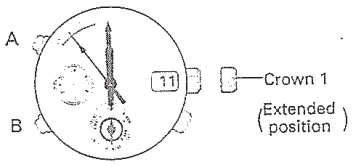


*The leap year comes once in four years. The leap year indication represents the number of years that have passed since the last leap year. See the table below.

L.Y.	1	2	3
1988	1989	1990	1991
1992	1993	1994	1995
1996	1997	1998	1999

Calendar setting

Ex.) December 11th, 1993 (Leap year marker: 1)



1. Pull out crown "1".
2. Press "A" repeatedly to set the leap year indication.
   As the hour and minute hands pass the 12 o'clock marker, the second hand moves to the next leap year marker.
   *The hands move quickly if the button is kept pressed for 2 seconds.
3. Press "A" repeatedly to set the desired month. It advances one month with each press of the button.
   *The hands move quickly if the button is kept pressed for 2 seconds.

4. Press "B" repeatedly to set the desired date. It advances one day with each press of the button.
   *The date advances quickly if the button is kept pressed for 2 seconds.
5. Push crown "1" back in to the normal position.
   *The calendar automatically adjusts for odd and even months including February of leap years up to 2099. If a nonexistent day (e.g. February 30th) is set and crown "1" is pushed back in to the normal position, the calendar will automatically be set to the first day of the next month (March 1st).

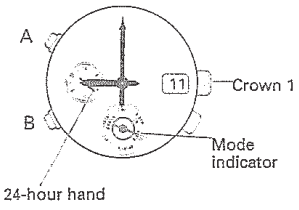
ALARM

The alarm can be set on a 24-hour basis in minutes and, therefore, rings once a day.

Alarm time setting

- Turn crown "1" to set the mode indicator to "ALARM SET". The hour and minute hands indicate the alarm time you designated previously, and the second hand advances to the 12 o'clock position.

Ex.) 9:00 AM



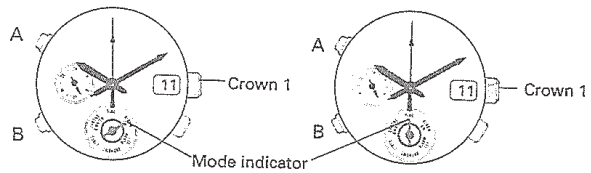
1. Press "A" repeatedly to set the minute hand. It advances one minute with each press of the button.
   *The hand moves quickly if the button is kept pressed for 2 seconds.
   *As the minute hand moves, the hour hand also moves correspondingly.
2. Press "B" repeatedly to set the hour hand. It advances one hour with each press of the button.

*The hand moves quickly if the button is kept pressed for 2 seconds.
*The minute hand will not move if "B" is pressed.
*The 24-hour hand moves correspondingly with the hour hand. Check that the 24-hour hand is set correctly.
*The alarm can be set with crown "1" at the extended position.

Alarm engagement/disengagement

- To engage the alarm, turn crown "1" to set the mode indicator to "ALARM ON".
- To disengage the alarm, turn crown "1" to set the mode indicator to "TIME".

[ALARM ON mode with the alarm engaged] [TIME mode with the alarm disengaged]



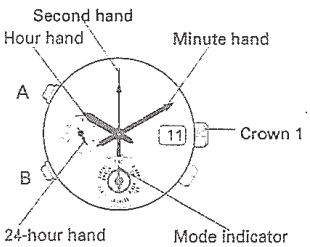
*The alarm rings at the designated time for 20 seconds. To stop it manually, press "A" or "B".
*To check the designated alarm time, set the mode indicator to " ALARM SET".
*The alarm can be tested by keeping both "A" and "B" pressed at the same time with the mode indicator at "ALARM ON".

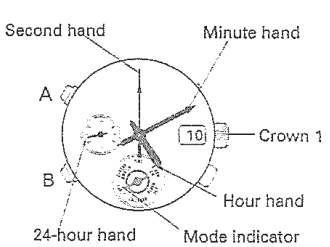
DUAL TIME

The time of an area in a different time zone can be displayed in the 24-hour indication. On the basis of the current time set in the TIME mode, up to 23 hours of time difference can be set in hour increments. The date changes correspondingly with the time.

- Turn crown "1" to set the mode indicator to "DUAL T.".

Ex.) 10:10 AM of 11th Japan
5:10 PM of 10th Los Angeles (U.S.A.)





Dual time setting

1. Pull out crown "1". The second hand automatically advances to the 12 o'clock position.
2. Press "A" or "B" repeatedly to set the hour hand to the desired time.
   * With each press of "A" or "B", the hand advances or moves back one hour, respectively.
   * The hand moves quickly if "A" or "B" is kept pressed for 2 seconds.
   * The date changes correspondingly with the time set.
   * The hour hand can be advanced or moved back up to 23 hours. Even if you try to set the time difference of more than 24 hours, the hand will not move by pressing the button.
3. Push crown "1" back in to the normal position.
   * The minute and second hands will not move if "A" or "B" is pressed. They move correspondingly with the current time in the "TIME" mode. Therefore, it is not necessary to push in the crown in accordance with a time signal for exact time setting.

TIME DIFFERENCES

GMT = Greenwich Mean Time

(As of December, 1992)

GMT ± (hours)	Major cities in respective time zones
0	London*, Casablanca, Dakar
+ 1	Paris*, Rome*, Amsterdam*, Frankfurt*, Berlin*, Tripoli*
+ 2	Cairo*, Athens*, Istanbul*, Kiev*, Cape Town
+ 3	Moscow*, Mecca, Nairobi
+ 4	Dubai
+ 5	Karachi, Tashkent
+ 6	Dacca
+ 7	Bangkok, Phnom Penh, Jakarta
+ 8	Hong Kong, Manila, Beijing, Singapore
+ 9	Tokyo, Seoul, Pyongyang
+10	Sydney*, Guam, Khabarovsk*

GMT ± (hours)	Major cities in respective time zones
+11	Nouméa (New Caledonia), Solomon Islands
+12	Wellington*, Fiji Islands
–11	Midway Islands
–10	Honolulu
– 9	Anchorage*
– 8	Los Angeles*, San Francisco*, Vancouver*, Dawson (Canada)*
– 7	Denver*, Edmonton (Canada)*
– 6	Chicago*, Mexico City
– 5	New York*, Washington, D.C.*, Montreal*
– 4	Caracas, Santiago (Chile)*
– 3	Rio de Janeiro*, Buenos Aires*
– 2	
– 1	Azores*, Cape Verde Islands

Notes:

1. The cities marked with "*" (asterisk) use daylight saving time (summer time).
   Daylight saving time is a system adopted in some countries to make the best use of the daytime during a certain period in summer. Under this system the time is advanced one hour from the regular time.
2. The time differences and the use of daylight saving time (summer time) may change in some areas or countries when they are so decided by the countries concerned.

STOPWATCH

- The stopwatch can measure up to 31 days, 23 hours, 59 minutes and 59 seconds. For the first hour, it can measure in 1/10 second increments. It will measure in second increments thereafter. Split time measurement is possible.
- Turn crown "1" to set the mode indicator to "CHRONO Ø MATCH". The three hands return to the 12 o'clock position.
  * Even if the mode is changed from "CHRONO Ø MATCH" to another while the stopwatch is measuring, it continues counting. When the split time is being measured, the split time will be released and counting will be continued by changing the mode.

Movement of the stopwatch hands/how to read the hands

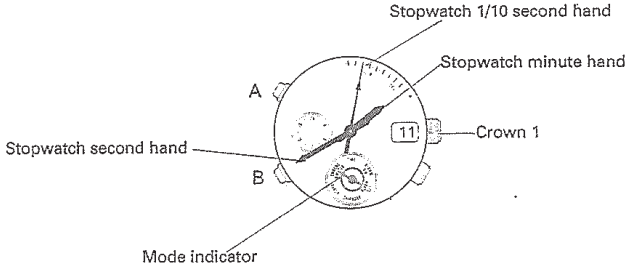
In the CHRONO Ø MATCH mode, the hour, minute and second hands in the TIME mode indicate MINUTE, SECONDS and 1/10 SECONDS, respectively, for the first hour, and HOUR, MINUTE and SECONDS thereafter.

1. Measurement of less than 1 hour

[For the first 10 minutes]

* The 1/10 second hand moves from 0 to 9 of the minute markers repeatedly.

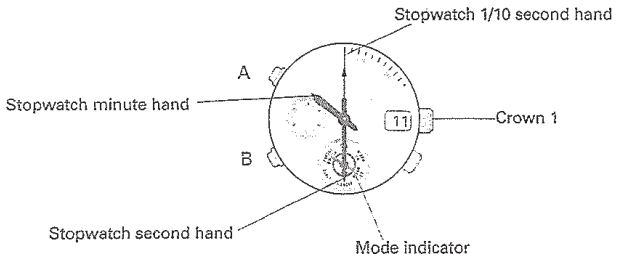
Ex.) 8 minutes 40 and 2/10 seconds



(After the first 10 minutes)

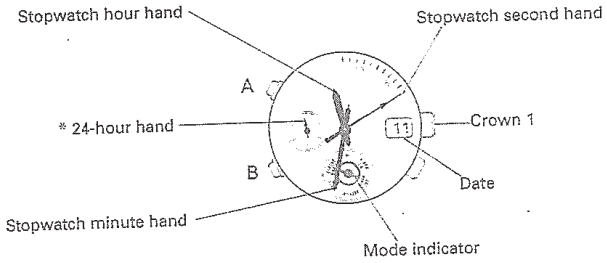
*The 1/10 second hand stays at the "0" position while the stopwatch is counting. When the measurement is stopped or split time is measured, it indicates the 1/10 seconds measured. When the measurement is restarted or split time is released, it returns to the "0" position.

Ex.) 50 minutes 30 seconds



2. Measurement of more than 1 hour up to 24 hours

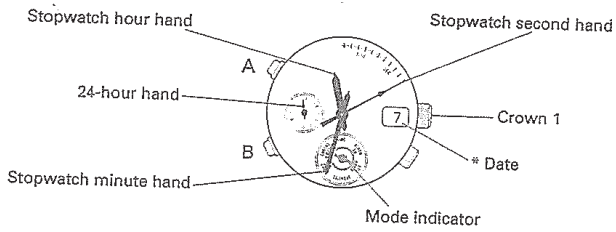
Ex) 23 hours 35 minutes 10 seconds



*The 24-hour hand indicates the elapsed hours.

3. Measurement for more than 24 hours

Ex.) 7 days, 23 hours 35 minutes 10 seconds



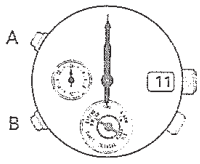
*The date indicates the number of elapsed days.

Notes:
1. For the first hour, the 24-hour hand will not indicate any measurement.
2. The date numeral indicates the current date while the measurement is less than 24 hours. It indicates the number of elapsed days thereafter.

Stopwatch operation

- Before using the stopwatch, be sure to reset the hands to "0" position. When the stopwatch is measuring, press "A" to stop measurement and then press "B" once.

*With each press of the buttons, a beep sounds for confirmation.



1. Standard measurement

To start	:	Press "A".
To stop	:	Press "A".
To reset	:	Press "B".

2. Accumulated elapsed time measurement

To start	:	Press "A".
To stop	:	Press "A".
To restart	:	Press "A".
To stop	:	Press "A".

*Restart and stop of the stopwatch can be repeated by pressing "A".

To reset	:	Press "B".

3. Split (intermediate) time measurement

To start	:	Press "A".
To measure split time	:	Press "B".
To release split time	:	Press "B".

*Measurement and release of the split time can be repeated by pressing "B".

To stop	:	Press "A".
To reset	:	Press "B".

ORBITAL RULE

(For some models with an orbital rule scale on the dial)

According to the law of gravitation, a satellite orbiting the earth has a certain velocity depending on its altitude. Therefore, information about its orbit such as velocity, altitude and orbital period, that is, the time it takes for a satellite to circle the earth once, can be obtained if any one of them is determined.

- By locating the orbital period of a satellite on the time scale on the dial, the orbital rule indicates its velocity and altitude, and the number of revolutions it makes in a day, on condition that the satellite orbits the earth at an altitude of less than 1,300 miles.

How to use the orbital rule

1. Locate the minute marker indicating the orbital period (in minutes).
2. Read the values on the orbital rule corresponding to the minute marker.

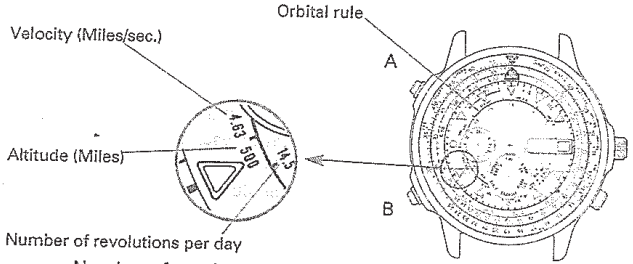
Ex. 1: If the orbital period (X) is 60 minutes or less, read the value on the orbital rule corresponding to the number of minutes.

Ex. 2: If the orbital period (X) is more than 60 minutes, do as follows;

Orbital period (X) − Nearest multiple of 60 less than (X) = Minute marker position (Y)

X − 60 = Y
X − 120 = Y
X − 240 = Y ..... etc.

For example, if the orbital period is 101 minutes, then your calculation will be;
101 – 60 = 41 ..... Read the values on the orbital rule corresponding to the minute marker "41".



Number of revolutions per day : 14.3
Altitude : 500 miles
Velocity : 4.63 miles/sec.

Note: Normally measurement of the time it takes for a satellite to make a single rotation cannot be made with the naked eye as the rotation of the earth must be taken into account.

TELEMETER

(For some models with a telemeter scale on the bezel)

The telemeter shows the distance from your place to an object that emits both sound and light. For example, it can indicate the distance to the place where the lightning struck. Use the telemeter with the stopwatch.

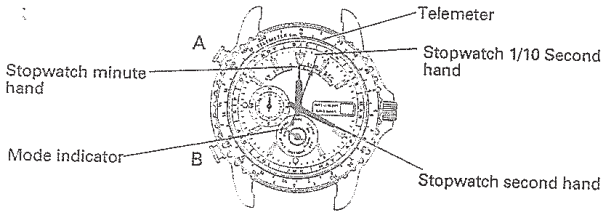
- Before using the telemeter, make sure that "0" of the telemeter scale is at the 12 o'clock position.

How to use the telemeter

- Turn crown "1" to set the mode indicator to "CHRONO Ø MATCH".

1. Press "A" to start the stopwatch when you see the light.
2. Press "A" to stop the stopwatch when you hear the sound.
3. Read the telemeter scale on the bezel that the stopwatch second hand points to.

Ex.) If you hear the sound "19.3" seconds after you see the light, the distance from your place to the source of the light and sound is approximately "6" km.



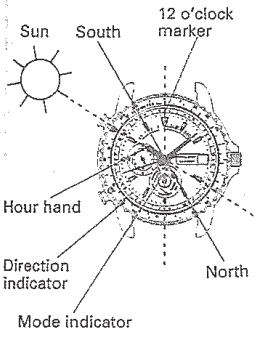
4. Press "B" to reset the stopwatch.

DIRECTION INDICATOR

(For some models with a direction indicator on the rotating bezel.)

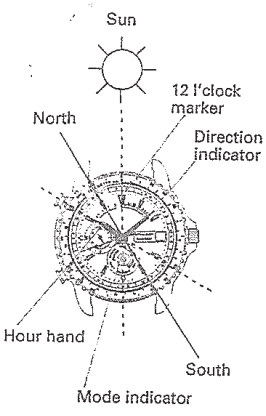
The direction indicator on the rotating bezel can indicate the directions when used with the hour hand.

- Turn crown "1" to set the mode indicator to "TIME".
- If the daylight saving time (summer time) is in effect in your area, be sure to set your watch one hour behind the current time before using the rotating bezel.



[In the Northern Hemisphere]

1. While keeping the dial level, point the hour hand to the direction of the sun.
2. Turn the rotating bezel to set "S" of the direction indicator to the middle point of the arc between the 12 o'clock marker and the time scale indicated by the hour hand.
   * In the AM period, set "S" to the middle point of the arc to the left of the 12 o'clock marker. In the PM period, set it to the middle point of the arc to the right of the 12 o'clock marker.
3. "N", "S", "E" and "W" on the rotating bezel indicate the directions of "north", "south", "east" and "west", respectively.



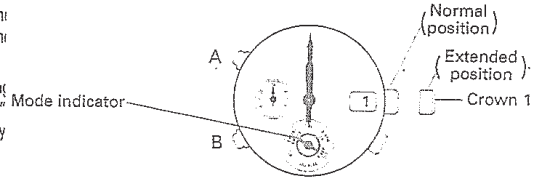
[In the Southern Hemisphere]

1. While keeping the dial level, point the 12 o'clock marker to the direction of the sun
2. Turn the rotating bezel to set "N" of the direction indicator to the middle point o the arc between the 12 o'clock marker an the time scale indicated by the hour hand
   * In the AM period, set "N" to the middl point of the arc to the left of the 12 o'cloc marker. In the PM period, set it to th middle point of the arc to the right of th 12 o'clock marker.
3. "N", "S", "E" and "W" on the rotatin bezel indicate the directions of "north" "south", "east" and "west", respectively

NECESSARY PROCEDURE AFTER BATTERY CHANGE

When the battery is replaced, the information stored in the built-in IC does not correspond with the time and date actually displayed. Before using the watch, therefore, be sure to reset the hands to the 12 o'clock position and set the date numeral "1" to the center of the calendar frame, following the procedure below.

- Turn crown "1" to set the mode indicator to "CHRONO Ø MATCH".
  * When the stopwatch is counting, press "A" to stop the measurement and then press "B" to reset the hands.



1. Pull out crown "1" . The second hand advances 10 seconds and returns to where it was.

2. Keep "A" and "B" pressed at the same time for 2 seconds. A beep sounds when the buttons are released, and the hands start to show the demonstration movement.
3. Press "A" or "B" to stop the hands.
4. Press "A" to select the hand or date to be adjusted in the following order.

Second hand → Minute hand → Hour hand → Date

*The hands selected to be adjusted will turn 60° clockwise and return to where they were. The date will advance one day and return to the current date if selected.

5. Press "B" to reset the hands to the 12 o'clock position and set the date to "1".

*With each press of "B", the second hand advances one second while the other hands and date move slightly.
*The hands and date move quickly if the button is kept pressed for 2 seconds.
*The 24-hour hand moves correspondingly with the hour hand. Check that the 24-hour hand is set correctly.

6. Push crown "1" back in to the normal position.
7. Turn crown "1" to set the mode indicator to "TIME" or "ALARM ON" to set the desired time. (Refer to "TIME SETTING".)
8. Turn crown "1" to set the mode indicator to "CALENDAR" to set the desired month and date. (Refer to "CALENDAR".)

BATTERY LIFE INDICATOR

The battery needs to be replaced when you see the second hand moving at two-second intervals instead of the normal one-second interval. The watch will, however, remain accurate while the second hand is moving at two-second intervals.

BATTERY CHANGE

The miniature battery which powers your watch should last approximately 2 years. However, because the battery is inserted at the factory to check the function and performance of the watch, its actual life once in your possession may be less than the specified period. When the battery

expires, be sure to replace it as soon as possible to prevent any malfunction. For battery replacement, we recommend that you contact an AUTHORIZED SEIKO DEALER and request SEIKO SR927W battery.

Note: If the alarm is used more than once a day and/or the stopwatch for more than 20 seconds a day, battery life may be less than the specified period.

TO PRESERVE THE QUALITY OF YOUR WATCH

WATER RESISTANCE

- **Non-water resistance**
  If "WATER RESISTANT" is not inscribed on the case back, your watch is not water resistant, and care should be taken not to get it wet as water may damage the movement. If the watch becomes wet, we suggest that you have it checked by an AUTHORIZED SEIKO DEALER or SERVICE CENTER.

- **Water resistance (3 bar)**
  If "WATER RESISTANT" is inscribed on the case back, your watch is designed and manufactured to withstand up to 3 bar, such as accidental contact with splashes of water or rain, but it is not designed for swimming or diving.

- **Water resistance (10 bar/15 bar)**
  If "WATER RESISTANT 10 BAR" or "WATER RESISTANT 15 BAR" is inscribed on the case back, your watch is designed and manufactured to withstand up to 10 bar/15 bar and is suitable for swimming and shallow diving, but not for scuba diving. We recommend that you wear a SEIKO Diver's watch for scuba diving.
  Before using the watch in water, be sure the crowns are pushed in completely.
  Do not operate the crowns and buttons when the watch is wet or in water.
  If used in sea water, rinse the watch in fresh water and dry it completely.

NOTE:
Pressure in bar is a test pressure and should not be considered as corresponding to actual diving depth since swimming movement tends to increase the pressure at a given depth. Care should also be taken on diving into water.

TEMPERATURES

Your watch works with stable accuracy between a temperature range of 5°C and 35°C (41°F and 95°F).
Temperatures over 60°C (140°F) may cause battery leakage or shorten the battery life.
Do not leave your watch in very low temperatures below –10°C (+14°F) for a long time since the cold may cause a slight time loss or gain.

However, the above conditions will be corrected when the watch re turns to normal temperature.

SHOCKS & VIBRATION

Light activities will not affect your watch, but be careful not to drop your watch or hit it against hard surfaces, as this may cause damage.

MAGNETISM

Your watch will be adversely affected by strong magnetism. Keep it away from close contact with magnetic objects.

CHEMICALS

Be careful not to expose the watch to solvents (e.g., alcohol and gasoline), mercury (i.e., from a broken thermometer), cosmetic spray, detergents, adhesives or paints. Otherwise, the case, bracelet, etc. may become discolored, deteriorated or damaged.

CARE OF CASE AND BRACELET

To prevent possible rusting of the case and bracelet caused by dust, moisture and perspiration, wipe them periodically with a soft dry cloth

PRECAUTION REGARDING CASE BACK PROTECTIVE FILM

If your watch has a protective film and/or a sticker on the case back, be sure to peel them off before using your watch. Otherwise, perspiration getting in under them may rust the case back.

PERIODIC CHECK

It is recommended that the watch be checked once every 2 to 3 years. Have your watch checked by an AUTHORIZED SEIKO DEALER or SERVICE CENTER to ensure that the case, buttons, crowns, gasket and crystal seal remain intact.

SPECIFICATIONS

1.	Frequency of crystal oscillator	32,768 Hz (Hz = Hertz ... Cycles per second)
2.	Loss/gain (monthly rate)	Less than 15 seconds at normal temperature range (5°C ~ 35°C) (41° F ~ 95°F)
3.	Operational temperature range	–10°C ~ +60°C (14°F ~ 140°F)
4.	Driving system	Step motor, 4 pieces
5.	Display system "TIME"	Time display (hour, minute, second and 24-hour hands)

"ALARM ON"	Time display (hour, minute, second and 24-hour hands)
"ALARM SET"	Alarm display (hour, minute, second and 24-hour hands)
"CALENDAR"	Calendar display (Year is indicated by the second hand; month is indicated by the hour and minute hands; and date is displayed in numerals.) The calendar automatically adjusts for odd and even months of February of leap years.
"DUAL TIME"	Dual time display (hour, minute, second and 24-hour hands)
"CHRONO Ø MATCH"	Stopwatch display (hour, minute, second and 1/10 second hands) Adjustment of the hand position.
6. Battery	SEIKO SR927W, 1 piece
7. IC (Integrated Circuit)	C-MOS-LSI, 1 piece

* The above specifications are subject to change without prior notice, for product improvement.

TABLE DES MATIERES